

REMARKS

In paragraph 1 of the Office Action Applicant's prior election without traverse of claims 1-10 is acknowledged. Responsive thereto, Applicant has cancelled claims 11-18 in this application.

In paragraph 2 of the Office Action claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honjo et al (US 6,466,416), stating:

"With regard to claims 1 and 6, Honjo et al shows a magnetic head (Figs. 3 and 4) including: a substrate 1; a read head 4 being fabricated upon the substrate; a P1 pole 6 being fabricated upon the read head; a write gap layer 7 being fabricated upon the P1 pole; a P2 pole tip 11 being fabricated upon portions of the write gap layer, wherein the P2 pole tip includes a first portion (front portion) being comprised of a magnetic layer material 14 (Fig. 4; column 9, lines 19-22) and a second portion 11 being comprised of electroplated material (Column 9, lines 22-25), and wherein the P2 pole tip has a width dimension W that is formed in part from a thickness of the seed layer material portion and in part from a thickness of the electroplated material portion (Fig. 4).

With regard to claim 6, Honjo et al further shows the magnetic head is used for a hard disk drive (Column 1, lines 6-7) inheriting at least one hard disk being fabricated for rotary motion upon a disk drive; at least one magnetic head adapted to fly over the hard disk for writing data on the hard disk.

Honjo et al does not name layer 14 as seed layer.

However, it would have been obvious at the time the invention was made to one of ordinary skill in the art to recognize that layer 14 is also a seed layer. The rationale is as follows: Honjo et al teaches that layer 14 is formed by physical vapor deposition (which is not electroplating) (Column 9, lines 62-53) and used for supplying electric current when third layer 11 is formed by electroplating method (Column 9, lines 19- 21); therefore, the layer 14 functions as a seed layer. One of ordinary skill in the art would have been motivated by Honjo et al's teaching to recognize layer 14 as a seed layer.

With regard to claims 2 and 7, Honjo et al further shows the first portion of the P2 pole tip that is comprised of the seed layer material 14 forms a sidewall of the P2 pole tip.

With regard to claims 3 and 8, Honjo et al further shows the seed layer material 14 is formed with a thickness of 100 Å (column 12, lines 31-32), which is approximately 50 Å to approximately 500 Å, and the electroplated material 11 is formed with a thickness of 5000 Å (Column 12, lines 43-44).

With regard to claims 4 and 9; Honjo et al further shows the electroplated material 11 having thickness of 1000 Å or more (Column 12, line 51-52), which is approximately 1500 Å; and the seed layer material thickness is more than 50 Å and less 1000 Å (Column 12, lines 33-42), but does not show it is approximately 250 Å.

However, it would have been obvious at the time the invention was made to one of ordinary skill in the art to include 250 Å as the thickness of the seed layer. The rationale is as follows: Honjo et al teaches that the seed layer material thickness should fall in the range of more than 50 Å and less than 1000 Å for balancing the good layer quality and the writing capability (Column 12, lines 33-42). One of ordinary skill in the art would have been motivated by Honjo et al's teaching to find a suitable thickness through experimentation and optimization, which would include 250 Å.

With regard to claims 5 and 10, Honjo et al further shows that the seed layer material 14 is NiFe, which is comprised of NiFe (Column 12, line 31) and the electroplated material 11 is CoNiFe, which is comprised of NiFe (Column 12, line 42- 43)."

Responsive thereto, Applicant respectfully traverses this ground of rejection and asserts that claims 1-10 recite subject matter that is neither taught by nor obvious from the cited prior art. Honjo '416 describes well known prior art, and the present invention is quite different from Honjo '416 as is next described.

Referring to Fig. 11 of the application, the significant differences between the P2 pole tip of the present invention and that of Honjo '416 can clearly be seen. As depicted in Fig. 11, the P2 pole tip 80 of the present invention is formed upon the write gap layer 34. The pole tip includes a unique seed layer that forms a sidewall 54 of the pole tip, as well as a base portion upon the write gap layer 34. This sidewall portion of the pole tip that is composed of the seed layer 54 is neither taught by nor obvious from the cited prior art. The significance of the sidewall seed layer 54 (as is described in the specification) is that when the P2 pole tip material 88 is electroplated upon the seed layer, it accumulates outwardly from the sidewall seed layer 54. Thus the width W of the pole tip includes a seed layer portion 54 and an electroplated portion 88. This unique method for fabricating the P2 pole tip facilitates the creation of narrower P2 pole tips than have been heretofore fabricated.

Focusing next upon the claim language of independent claim 1, it recites, in part,:

"...and wherein said P2 pole tip has a width dimension W that is formed in part from a thickness of said seed layer material portion and in part from a thickness of said electroplated material portion."

Referring again to Fig. 11 of the specification, it is seen that the P2 pole tip 80 has a width W that is formed in part from the seed layer 54 and in part from the electroplated material 88.

Now referring to Honjo '416, and particularly Fig. 4 thereof, it is seen that Honjo teaches a version of the standard electroplated P2 pole tip in which seed layers are first deposited across the width of the P2 pole tip and further pole tip material is electroplated upwardly upon it across the width of the P2 pole tip. Significantly, the width of Honjo's P2 pole tip is not comprised of a seed layer portion and an electroplated portion, as is recited in claim 1 with reference to Fig. 11 of the specification. A review of Honjo '416 reveals no teaching or suggestion that Honjo's seed layer could form just a portion of the width dimension W of the pole tip and the electroplated pole tip material could form another portion of the width W as that width dimension is defined in Applicant's specification and utilized in claim 1. Applicant therefore respectfully submits that independent claim 1 recites subject matter that is not obvious from the teachings of the cited prior art. These arguments are likewise applied to independent claim 6.

With regard to dependent claim 2, it recites the further limitation that the seed layer material forms a sidewall of the P2 pole tip. There is no teaching or suggestion in Honjo '416 regarding such a seed layer structure. Applicant therefore respectfully submits that claim 2 is neither taught by nor obvious from the cited prior art. These arguments are likewise applied to dependent claim 7.

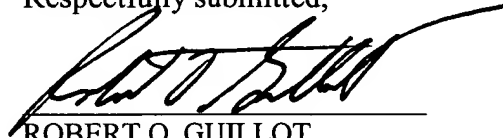
With regard to dependent claims 3-5 and 8-10, Applicant urges that these dependent claims are allowable in that they depend from an allowable base claim, either directly or indirectly.

Applicant has added new claims 19-24 to this application. New independent claim 19 provides further limitations regarding the description of the seed layer which forms a sidewall of the P2 pole tip. Applicant requests Examination of these claims and urges that these claims recite limitations not taught by the prior art.

Having responded to all of the paragraphs of the Office Action, and having amended the claims accordingly, Applicant respectfully submits that the Application is now in condition for allowance. Applicant therefore respectfully requests that a Notice of Allowance be forthcoming

at the Examiner's earliest opportunity. Should the Examiner have any questions or comments with regard to this amendment, a telephonic conference at the number set forth below is respectfully requested.

Respectfully submitted,



ROBERT O. GUILLOT

Reg. No. 28,852

Dated: September 24, 2003

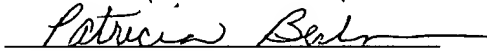
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CERTIFICATE OF MAILING (37 CFR 1.8(a))

I hereby certify that this paper (along with any referred to as being attached or enclosed) is being deposited on September 24, 2003 with the U.S. Postal Service as first class mail in an envelope addressed to: MS Non Fee Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Date: September 24, 2003


Patricia Beilmann